

# Source and Accuracy of Data

## APPENDIX B.

### Source of Data

This report includes data from the Census Bureau, the Bureau of Labor Statistics (BLS), and the National Center for Health Statistics (NCHS). The Census Bureau data in this report, which cover a wide range of topics and years, were collected primarily in the Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), and the decennial census. The BLS data are from the CPS. Data from the NCHS are from its vital statistics registration system. The CPS deals mainly with labor force data for the civilian noninstitutional population.

**Survey estimates.** The estimation procedures used for CPS and SIPP data inflate weighted sample results to independent estimates of the civilian noninstitutional population of the United States by age, sex, race, and Hispanic/non-Hispanic categories. These independent estimates are based on statistics from decennial censuses; statistics on births, deaths, immigration, and emigration; statistics on the size of the Armed Forces; and, starting in 1994, an adjustment for undercoverage in the census. The estimation procedure for 1994 used independent estimates based on the 1990 decennial census; earlier data used independent estimates based on the 1980 decennial census. (Data in some sections are revised for earlier years. These revisions are indicated in the relevant section.) This change in independent estimates had relatively little impact on summary measures, such as medians and percent distributions, but did have a significant impact on levels. For example, use of the 1990 based population controls resulted in about a 1-percent increase in the civilian noninstitutional population and in

the number of families and households. Thus, estimates of levels for 1994 will differ from those for earlier years by more than what could be attributed to actual changes in the population. These differences could be disproportionately greater for certain population subgroups than for the total population. The estimation procedures used for CPS and SIPP data are discussed in more detail in the publications cited at the end of the sections in this report.

### Reliability of Estimates

Since the CPS and SIPP estimates are based on samples, they may differ somewhat from the figures from a complete census using the same questionnaires, instructions, and enumerators. There are two types of errors possible in an estimate based on a sample survey: sampling and nonsampling. The standard errors provided in most *Current Population Reports* primarily indicate the magnitude of the sampling errors. They also partially measure the effect of some nonsampling errors in response and enumeration, but do not measure any systematic biases in the data. Bias is the difference, averaged over all possible samples, between the estimate and the desired value. The accuracy of a survey result depends on the net effect of sampling and nonsampling errors. Particular care should be exercised in the interpretation of figures based on a relatively small number of cases or on small differences between estimates.

**Sampling variability.** Standard errors are primarily measures of sampling variability, that is, of the variations that occur by chance because of collecting a sample rather than surveying the entire

population. Standard errors are not given in this report because of the wide range of topics included and the wide variety of data sources. Standard errors may be found in the publications that are noted at the end of each section or by contacting the subject specialist.

Some statements in these publications may contain estimates followed immediately by another number. For those statements, one can add the number to the estimate and subtract the number from the estimate to calculate upper and lower bounds of the 90-percent confidence interval. For example, if a statement contains the phrase “grew by 1.7 ( $\pm 1.0$ ) percent,” the 90-percent confidence interval for the estimate, 1.7 percent, would be from 0.7 to 2.7 percent.

**Nonsampling variability.** As in any survey work, the results are subject to errors of response and nonreporting in addition to sampling variability. Nonsampling errors can be attributed to many sources, e.g., inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, inability or unwillingness on the part of the respondents to provide correct information, inability to recall information, errors made in collection such as in recording or coding data, errors made in processing data, errors made in estimating values for missing data, and failure to represent all units with the sample (undercoverage).

**Comparability with other data.** Data obtained from sample surveys and other sources are not entirely comparable. This is due largely to differences in interviewer training and experience and in differing survey procedures. This is an additional component of error that is not reflected in the standard

errors. Therefore, caution should be used in comparing results among these sources.

A number of changes were made in CPS data collection and estimation procedures beginning in January 1994. The major change was the use of a new questionnaire. The questionnaire was redesigned to measure the official labor force concepts more precisely, to expand the amount of data available, to implement several definitional changes, and to adapt to a computer-assisted interviewing environment. The March 1994 supplemental income questions were also modified for adaptation to computer-assisted interviewing, although there were no changes in definitions and concepts. Due to these and other changes, one should use caution when comparing estimates from data collected in 1994 with estimates from earlier years. See the publications noted at the end of each section for a description of these changes and the effect they had on the data.

The April 1, 1990, census population was about 1.5 million less than the estimate for the same date obtained by carrying forward the 1980 census population with data on births, deaths, legal international migration, and the net migration of U.S. citizens across national boundaries. There are several possible explanations for the difference, or "error of closure," including a larger net underenumeration in the 1990 census, and duplications and erroneous enumerations in the 1980 census. For a detailed discussion, see J. Gregory Robinson, Bashir Ahmed, Prithwis Das Gupta, and Karen A. Woodrow, "Estimating Coverage of the 1990 U.S. Census: Demographic Analysis," *1991 Proceedings of the Social Statistics Section, American Statistical Association*, pages 11-20.

This report includes data for five different population universes: resident population plus Armed Forces overseas (resident population as cited in official publications, does not include Armed Forces over-

seas); resident population (census universe); civilian population; civilian noninstitutional population, plus Armed Forces living off post or with their families on post (SIPP and March CPS universes); and civilian noninstitutional population (CPS universe in months other than March). The estimated size of the resident population including Armed Forces overseas on July 1, 1994, was 260,651,000. The estimated civilian noninstitutional population on July 1, 1994, was 255,465,000 (table B-1). These population estimates are not adjusted for estimated net underenumeration in the 1990 census. However, for the first time, they incorporate a small increase (8,418 persons) in the census-base population from count resolution corrections processed through March, 1994.

While the civilian noninstitutional population has been adopted as the universe for many sample surveys, the

Table B-1.

**Components of Selected Population Universes: July 1, 1994**

(Numbers in thousands. These estimates are consistent with the 1990 census, as enumerated)

Population universe	Number	Percent
Resident plus Armed Forces overseas <sup>1</sup>	260,651	100.0
Armed Forces overseas	310	0.1
Resident population <sup>2</sup>	260,341	99.9
Resident Armed Forces	1,409	0.5
Civilian population <sup>3</sup>	258,932	99.3
Institutional population <sup>4</sup>	3,466	1.3
Noninstitutional population <sup>4</sup>	255,465	98.0

<sup>1</sup>Estimates of the resident population plus Armed Forces overseas include U.S. residents and members of the Armed Forces on active duty stationed outside the United States, but do not include military dependents and other U.S. citizens living abroad.

<sup>2</sup>Estimates of the U.S. resident population include persons resident in the 50 States and the District of Columbia. These estimates exclude the U.S. Armed Forces overseas, as well as civilian U.S. citizens whose usual place of residence is outside the United States.

<sup>3</sup>Civilian population estimates include U.S. residents not in the active duty Armed Forces. The difference between resident population plus Armed Forces overseas and civilian population is the worldwide Armed Forces population.

<sup>4</sup>The institutional population is estimated from proportions of the total population residing in institutions at the time of the 1990 census, applied to current estimates of the total population. The civilian noninstitutional population is computed as the difference between the civilian population and the institutional population.

Source: Current Population Reports, Series PPL-21, *U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1990 to 1994*.

## APPENDIX B. CONTINUED

data in tables B-1 and B-2 are not consistent with results of current surveys conducted by the Census Bureau through the end of 1993, including the CPS, which were calibrated to 1980 census-based projections. Current estimates for dates from January 1, 1994, onward, are not consistent with the results of those surveys, including the CPS, which are calibrated to projections that have been adjusted for estimated net underenumeration based on the 1990 Post Enumeration Survey.

The resident Armed Forces and the institutional population

differ greatly from the resident population in age-sex structure (table B-2). On July 1, 1994, males 18 to 64 years old constituted 87.9 percent of the resident Armed Forces population, compared with 30.3 percent of the resident population, and females 65 years and over constituted 36.6 percent of the institutional population, compared with 7.6 percent of the resident population. However, these two groups together (resident Armed Forces and institutional population) accounted for only 2.0 percent of the resident population. As a result, the civilian noninstitutional popula-

tion (which accounted for 98.1 percent of the resident population) has an age-sex structure very similar to that of the resident population. Similarly, the social and economic characteristics of the resident Armed Forces and of the institutional population could differ greatly from those of the resident population despite relatively small differences between the characteristics of the resident population and of the civilian noninstitutional population.

Table B-2.

**Selected Population Universes, by Sex and Broad Age Groups: July 1, 1994**

(These estimates are consistent with the 1990 census, as enumerated)

Population universe and age	Population			Percent of population universe		
	Total	Male	Female	Total	Male	Female
<b>RESIDENT POPULATION<sup>1</sup></b>						
Total .....	260,340,990	127,076,429	133,264,561	100.0	48.8	51.2
Under 18 years .....	68,018,112	34,845,454	33,172,658	26.1	13.4	12.7
18 to 64 years .....	159,164,869	78,755,910	80,408,959	61.1	30.3	30.9
65 years and over .....	33,158,009	13,475,065	19,682,944	12.7	5.2	7.6
<b>RESIDENT ARMED FORCES</b>						
Total .....	1,409,443	1,240,899	168,544	100.0	88.0	12.0
Under 18 years .....	1,790	1,434	356	0.1	0.1	—
18 to 64 years .....	1,407,653	1,239,465	168,188	99.9	87.9	11.9
65 years and over .....	—	—	—	—	—	—
<b>INSTITUTIONAL POPULATION<sup>2</sup></b>						
Total .....	3,466,492	1,897,628	1,568,864	100.0	54.7	45.3
Under 18 years .....	150,607	111,214	39,393	4.3	3.2	1.1
18 to 64 years .....	1,598,938	1,339,489	259,449	46.1	38.6	7.5
65 years and over .....	1,716,947	446,925	1,270,022	49.5	12.9	36.6
<b>CIVILIAN NONINSTITUTIONAL POPULATION<sup>2</sup></b>						
Total .....	255,465,055	123,937,902	131,527,153	100.0	48.5	51.5
Under 18 years .....	67,865,715	34,732,806	33,132,909	26.6	13.6	13.0
18 to 64 years .....	156,158,278	76,176,956	79,981,322	61.1	29.8	31.3
65 years and over .....	31,441,062	13,028,140	18,412,922	12.3	5.1	7.2

— Represents zero or rounds to zero.

<sup>1</sup>Estimates of the U.S. resident population include persons resident in the 50 States and the District of Columbia. These estimates exclude the U.S. Armed Forces overseas, as well as civilian U.S. citizens whose usual place of residence is outside the United States.

<sup>2</sup>The institutional population is estimated from proportions of the total population residing in institutions at the time of the 1990 census, applied to current estimates of the total population by age and sex. The civilian noninstitutional population is computed as the difference between the civilian population and the institutional population.

Source: Current Population Reports, Series PPL-21, *U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990 to 1994*.